Estimating the Effects of Smart Growth Strategies on VMT and GHG Emissions in Vermont

David Saladino, Karen Sentoff, Alexis Coplin (VHB)
Theodore Mansfield, Jonathan Slason, Reid Haefer (RSG)

Objectives

1. Demonstrate the degree to which Smart Growth strategies, particularly in the Vermont context, can reduce VMT to meet transportation related GHG emission reduction targets as promulgated in the *Vermont Pathways Analysis Report*

2. Quantify the co-benefits of smart growth strategies beyond GHG emission reductions, including **health** benefits, **safety** benefits, **reduced maintenance** costs, and **increased economic activity** in smart growth areas.

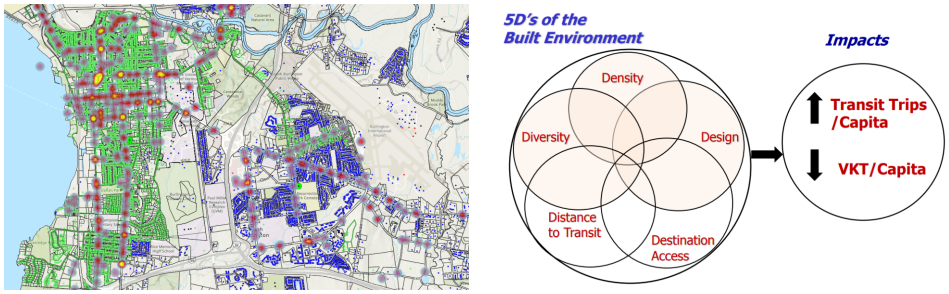

Figure 1. This research explores how built environment measures (left) influence VMT (right) in the Vermont context

Approach

The project team will first **compile a database of built environment measures** across Vermont. Next, **VMT will be estimated using passively collected big data.** Finally, a regression model will be used to **estimate VMT based on built environment measures**. This model will be used to **estimate the VMT and GHG impacts of future development scenarios**.

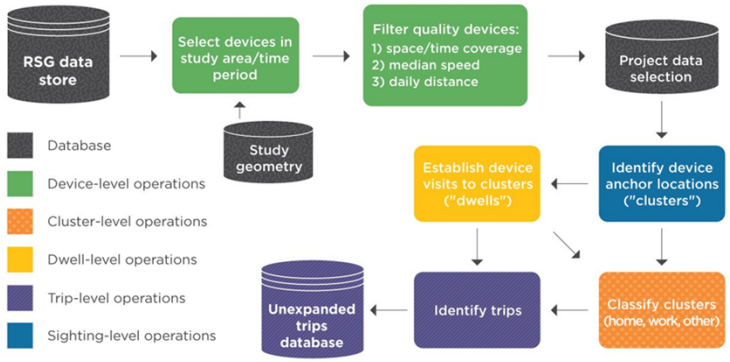

Figure 2. Passively collected data will be processed using the *rMerge* platform

Preliminary Results

As of September, the research team has developed a **draft built environment measures database** and completed a **preliminary analysis of passively collected data across** the state.

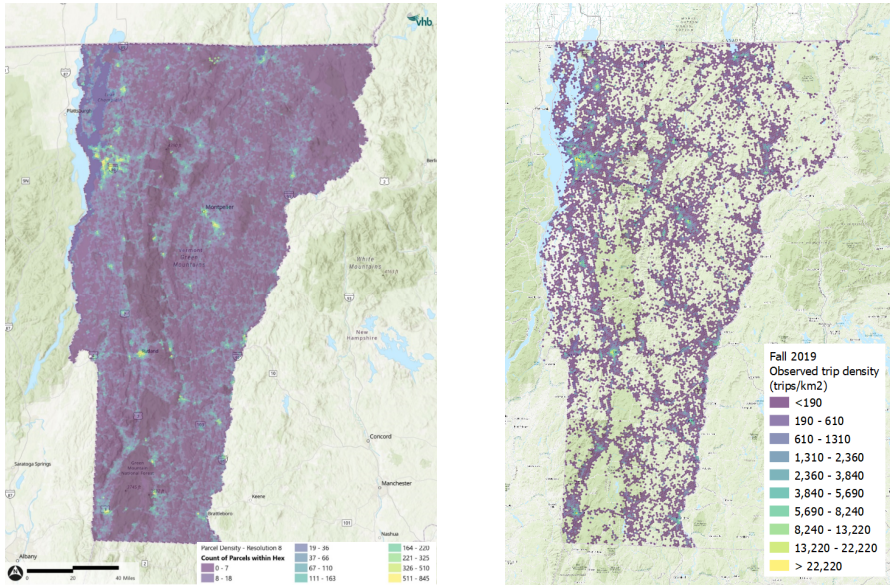

Figure 3. Draft built environment measures database (left) and preliminary passive data analysis (right)

Next Steps

In the fall, the research team will **finalize the built environment measures database**, **develop per capita VMT estimates** statewide, and **develop the VMT regression model**.

Acknowledgments

The research team would like to acknowledge the project champion Matthew Arancio, VTrans, and all members of the projects Technical Advisory Committee.

References

Reid Ewing & Robert Cervero (2017) "Does Compact Development Make People Drive Less?" The Answer Is Yes, Journal of the American Planning Association, 83:1, 19-25, DOI: 10.1080/01944363.2016.1245112